

CLAIMS

What is claimed is:

1. An image forming apparatus having an apparatus housing and a subunit moveable between open and closed positions with respect to said apparatus housing, comprising:
 - a drive roller and backup roller disposed adjacent and parallel in said apparatus housing;
 - a transport roller mounted in a frame and operative to guide a media transport belt; and
 - a mechanical linkage connected to said backup roller and operative to engage and disengage said transport roller frame, said linkage also operative to move said backup roller between an engaged position wherein said backup roller contacts said drive roller to form a nip therebetween, and a retracted position wherein said backup roller does not contact said drive roller, in response to said mechanical linkage disengaging said transport roller frame;
2. The apparatus of claim 1 further comprising a media alignment housing in which said drive roller and said backup roller are disposed.
3. The apparatus of claim 2 wherein said media alignment housing includes a cam follower surface.

4. The apparatus of claim 3 wherein said mechanical linkage includes a link member pivotally affixed to a shaft of said backup roller, and operative to pivot about the axis of said backup roller.
5. The apparatus of claim 4 wherein said link member includes a cam surface operative to contact said cam follower surface as said link member pivots about the axis of said backup roller, moving said backup roller from an engaged to a retracted position.
6. The apparatus of claim 5 wherein said media alignment housing includes a segmented bearing comprising a front and rear segment, in which said backup roller is disposed, the rear segment of which is disposed on a flexible roller holder operative move said rear segment from an engaged position wherein said backup roller is proximate said front segment to a retracted position wherein said backup roller is spaced from said front segment.
7. The apparatus of claim 5 further comprising a biasing member operative to bias said backup roller to an engaged position and to apply a nip force between said backup roller and said driver roller when said backup roller in the engaged position.
8. The apparatus of claim 5 wherein said link member pivots about the axis of said backup roller to move said backup roller from an engaged to a retracted position in response to said mechanical linkage disengaging said transport roller frame.
9. The apparatus of claim 8 wherein said transport roller frame is disposed on said subunit, and said mechanical linkage disengages said transport roller frame when said subunit is moved from a closed to an open position.

10. The apparatus of claim 9 said mechanical linkage further includes a bell crank member disposed in said apparatus housing and connected to said link member, said bell crank member operative to engage said transport roller frame as said subunit is moved from an open to a closed position, and to pivot said link member about the axis of said backup roller to move said backup roller from a retracted to an engaged position.

11. The apparatus of claim 10 wherein as said subunit is moved from a closed to an open position, said transport roller frame disengages from said bell crank member by rotating said bell crank member, which pivots said link member about the axis of said backup roller, engaging said cam surface with said cam follower surface to move said backup roller from an engaged to a retracted position.

12. The apparatus of claim 1 wherein media sheets are aligned by forcing a leading edge of said media sheet against the nip formed between said drive roller and said backup roller when said backup roller is in an engaged position, prior to advancing said media sheet by rotating said drive roller.

13. A media alignment mechanism for an image forming apparatus having a subunit moveable between open and closed positions, comprising:

- a housing having a continuous bearing, a segmented bearing and a cam follower surface;
- a drive roller disposed in said continuous bearing;
- a backup roller having a shaft disposed in said segmented bearing, adjacent and parallel to said drive roller, and moveable between an engaged position wherein said backup roller contacts said drive roller to form a nip therebetween, and a retracted position wherein said backup roller does not contact said drive roller, in response to said subunit moving from a closed to an open position; and
- a biasing member operative to bias said backup roller to the engaged position.

14. The mechanism of claim 13, further comprising a link member having a cam surface pivotally mounted to the shaft of said backup roller, said cam surface operative to engage said cam follower surface as said link member pivots about the axis of said backup roller, to move said backup roller from the engaged to the retracted position.

15. The mechanism of claim 14, further comprising a bell crank connected to said link member and operative to pivot said link member about the axis of said backup roller as said subunit is moved between a closed and an open position.

16. The mechanism of claim 15 wherein said bell crank pivots said link member in response to engaging and disengaging a frame member mounted on said subunit, as said subunit is moved between said closed and open positions.

17. The mechanism of claim 13 wherein said segmented bearing comprises a front segment and a rear segment, wherein said housing further includes a flexible roller holder, and wherein said rear bearing segment is disposed on said flexible roller holder and operative to move between an engaged position wherein said backup roller is proximate said front bearing segment and a retracted position wherein said backup roller is spaced apart from said front bearing segment.

18. A method of releasing a media sheet from nip between two rollers disposed in an image formation apparatus having a subunit movable between closed and open positions, comprising:

engaging and disengaging an element mounted on said subunit with a mechanical linkage disposed in said housing as said subunit is moved between closed and open positions; and
in response to engaging or disengaging said element, moving one of said rollers between an engaged position in which it forms a nip with the other said roller and a retracted position in which it is spaced apart from said other roller;
thereby releasing said media sheet from said nip when said one roller is in the retracted position.

19. The method of claim 18 wherein said element is a rotary element and engaging and disengaging said element comprises engaging and disengaging said rotary element with a bell crank member.

20. The method of claim 18 wherein said element is a frame member holding a rotary element and engaging and disengaging said element comprises engaging and disengaging said frame member with a bell crank member.

21. An image forming apparatus having an apparatus housing and a subunit moveable between open and closed positions with respect to said apparatus housing, comprising:

a drive roller and backup roller disposed adjacent and parallel in said apparatus housing;

a transport roller operative to guide a media transport belt; and

a mechanical linkage connected to said backup roller and operative to engage and disengage said transport roller, said linkage also operative to move said backup roller between an engaged position wherein said backup roller contacts said drive roller to form a nip therebetween, and a retracted position wherein said backup roller does not contact said drive roller, in response to said mechanical linkage disengaging said transport roller;